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# SCHEDULE OF GENERAL REQUIREMENTS FOR T.I. PROJECT

### I Letter of Intent

- A. Rent at least the following equipment:
  - 1. Univac 490 computer
  - 2. High speed printer with synchronizer and control unit
  - 3. FH-880 drum with synchronizer and control unit
  - 4. Uniservo IIA, magnetic tape units with synchroniser and control unit (with at least one unit compatible with IBM 729 tape)
  - 5. 80 column card reader and punch verifier with synchronizer and control unit
  - 6. Paper tape reader and punch equipment
  - 7. Certain inter-face equipment for data transmission between the central site and remote problem inquiry stations
- B. Delivery and installation by December 1962 in Washington D. C.
- C. Final assembly in St. Paul in an isolated area (possibly classified)

D.	Computer	maintenance	рy	

25X1

- E. Software provided by and developed in coordination with may include the following:
  - 1. Assembly program
  - 2. Executive program
  - 3. Algebraic compiler

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- 4. Input/Output handling reutines
- 5. Library of mathematical functions
- 6. Sort/Merge routines

5X1

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- 7. Library control program
- F. Statement of work shall be prepared in cooperation with personnel. Spec information will be relayed to within 45 days after the issuance of the letter of intent.

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### II Project Staff

25X1

i.

# A. Recommended Project Personnel

NPIC

		*	
	<b>a.</b>	Project Director -	Full Time 25X1
	<b>b.</b>	PAD Representative - plus 1 man	Dec. '61 - Jan. '6225X1 Helf Time
	c.	Army Representative - one man	Reb Nov. 162, as Required
	d.	Navy Representative - one man	Dec. '62 - Jan. '63,
	e,	Air Force Representative - one man	Full Time
	í.	TPDS Representative	Dec.'61 - Jan. '62, 25X1
	g.	TAB Representative -	Feb - Dec '62, as Required
	h.	PD Representative -	25X1
	i.	DMD Representative	As Required
	j.	DD/S Representative	Half Time
	k.	Programmer (TDY) - one man	Full Time
2.			
	a.	Project Coordinator -	25X1
	b.	Project Engineer	25X1
	c.	Technical Staff -	

Level of Effort



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d.	Technical Staff	25>
e.	Technical Staff -	
f.	Technical Staff -	
g.	Technical Staff -	
'n,	Technical Staff -	
i.	Technical Staff -	
j.	Technical Staff -	
a,	D. C. Representative	25X
b.	L, A. Representative	No. 1
c.	Systems Analyst, L. A one man	
đ.	Program Manager	
ė.	St. Paul Programming Supervisor	
	pment Contractor Representatives	25

### B. Schedule

3.

- 1. Prepare request for representatives December 22, 1961
- 2. Representatives assigned January 3, 1962
- 3. Project kick-off meeting January 10, 1962 (D. C. office)



### III Hardware (minimum)

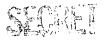
### A. Item Description

- 1. Univac 490 computer
- 2. High speed printer with synchronizer and control unit
- 3. FH-880 drum with synchronizer and control unit
- 4. Uniservo II-A magnetic tape units with synchronizer and control unit (at least one unit compatible with IBM 729 tape)
- 5. 80 column card reader and punch verifier with synchronizer and control unit
- 6. Paper tape reader and punch equipment
- 7. Certain inter-face equipment for data transmission between the central site and remote problem inquiry stations

- 1. Review of purchase order "boiler plate" 8 December 1961
- 2. Preliminary statement of work 8 December 1961
- 3. Letter of intent 15 December 1961
- 4. Final design concept 8 December 1961
- 5. Final statement of work 15 January 1962
- 6. Final A-E plan 15 January 1962



- 7. RRU acceptance of final statement of work- 22 January 1962
- 8. Submittal of RRU design/production schedule 22 Jan. 1962
  - a. Design/modification
  - b. Special program and equipment
  - c. Production)
  - d. Assembly ) Isolated (possibly secure) area
  - e. Check-out 1
- 9. Partial systems program loading, test and debugging on prototype 490 July-December 1962
- 10. Review and confirmation of hardware configuration September 1962
- 11. Checkout with special input devices October 1962
- 12. Factory acceptance
- 13. Deliver to Bldg. 213, Washington, D.C. 1 December 1962
- 14. Installation complete 31 December 1962
- 15. Load 15 January 1963
- to. Debug
- 17. Partial run 31 January 1963
- 18. Run 31 March 1963



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### IV. Special Purpose Equipment

### A. Type of Equipment

- 1. Alpha-numeric printer (Phase I)
- 2. Alpha-numeric input device (Phase I)
- 3. Interface equipment (Phase I)
- 4. Measuring engine and/or viewer (Phase I)
- 5. Plotter (Phase I)
- 6. Graphic output display (Phase II)
- 7. Miscellaneous input-output devices (Phase II)
- 8. Supervisor Control Console and Display (Phase II)

### B. Schedule

- 1. Formalize measurement hardware design concept by 15 January 1962
- Establish requirement for "standard" I/O devices- (1) Keyboard,
   (2) alpha-numeric printer, and (3) inteface equipment by 15 January
   1962.
- 3. Prepare specifications for "standard" input/output devices (including quantity, location, input size/rate, machine logic, interface, and delivery)
- 4. Review existing plotters and/or specify high speed plotter for on-line application

5.	Review	in-production input/output devices for on or off-line appli-	
	cation		25X1

 Prepare specifications for on-line special purpose input or output devices





### V. Problem Material (Derivation & Analysis)

### A. Problem Description

### 1. IORS

- a. Numerical rectification of panoramic photography
- b. Numerical rectification of oblique photography
- c. Distance (ground) sub-routines
- d. Height sub-routines
- e. Error analyses
- f. Application variations
- 2. Orientation from horizon images
- 3. Least squares space re-section
- 4. Least squares space intersection
- 5. Direct and inverse geodetic problems
- 6. Terrestrial photogrammetry
- 7. Camera calibrations
- 8. Hycon rectifier
- 9. Optical rectification programs

- 1. Numerical rectification of panoramic photography
- 2. Distance sub-routines for (1)



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- 3. Error analyses for (1) and (2)
- 4. Flow diagrams for (1), (2), and (3)
- 5. Computer program for the above
- 6. Numerical rectification of oblique photography
- 7. Distance sub-routines for (6)
- 8. Height sub-routines for (6)
- 9. Error analyses for (6), (7), and (8)
- 10. Flow diagrams for (6), (7), (8), and (9)
- 11. Computer programs for the above
- 12. Remaining problems as determined

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### VI. Software

### A. Program Description

- 1. Problem material (worker programs)
- 2. Executive routine
- 3. Priority
- 4. Algebraic compiler (as mutually satisfactory and agreeable)
- 5. Input-output routines
- 6. Interrupt
- 7. Assembly
- 8. Library of mathematical functions
- 9. Sort and merge
- 10. Test routines (maintenance and programming)

- i. Establish programming assignments and responsibilities.
- 2. Evaluate and select algebraic compiler program
- 3. Program algebraic compiler
- 4. Establish schedule for worker programs
- 5. Schedule general programs
- 6. Establish special test program on the 490 prototype



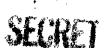
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# VII. Hardware Modification and Improvement

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- A. Machine or program modification
  - 1. In production process
  - 2. After delivery
- B. Schedule
  - 1. Modification plan
  - 2. Contract arrangements





# VIII. Maintenance

- A. Type of maintenance On-site
  - 1. Central site equipment
  - 2. Input/output equipment

- 1. Confirm on-site maintenance plan
- 2. Standard and special purpose test equipment lists
- 3. Issue contract or include in statement of work
- 4. Confirm personnel arrangements (clearances, training, etc.)



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### IX. Training

### A. Type of Training

- 1. User (input-output)
- 2. Programming
- 3. General operation
- 4. Management orientation

### B. Schedule

- 1. User training viewpoint) to commence November 1962
- 2. Programming training for 8-10 NPIC personnel to be staggered over next five years.



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### X. Manuals

### A. Type of manual

- 1. Operating manuals
- 2. Routine and special maintenance
- 3. Special equipment
- 4. Programming
- 5. Installation

### B. Schedule

To be determined



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### XI. Computer Back-up Plan

- 1. Confirm plan to use back-up Alwac
- 2. Establish or confirm contract arrangements
- 3. Establish schedule
- 4. Set up movement plan for present Alwac
- 5. Confirm facility plans



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# XII. Security - Machine and Program

### A. Item

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1.

classified (SECRET) contract

- 2. Determine or establish security requirements
- 3. Facility
- 4. Programs

### B. Schedule

- 1. Establish or identify security concept
- 2. Review system
- 3. Establish machine and program security plan

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### XIII. Clearances

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### A. Schedule

- 1. Review manpower list and assignments
- 2. Submit names for clearances
- 3. Establish schedule of manpower use based on anticipated clearances
- B. Recommended names for TS clearance

	plus a Systems Analyst  Program Manager, Programming Supervisor
ı	Logicalit Manager, Lingings and an analysis



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